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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
Levy et al.

Art Unit: 2134
Conf. No.: 1278

Application No.: 09/731,456

Filed: December 6, 2000

For: AUTHENTICATING MEDIA SIGNALS BY ADJUSTING FREQUENCY CHARACTERISTICS TO REFERENCE VALUES

Examiner: P. Poltorak

Date: November 21, 2005

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Respectfully submitted,

Date: November 21, 2005

DIGIMARC CORPORATION

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APPEAL BRIEF

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This brief is in furtherance of the Notice of Appeal filed July 21, 2005. Please charge the fee required under 37 CFR 1.17(f) or any deficiency thereof to deposit account 50-1071 (see transmittal letter).

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I REAL PARTY IN INTEREST

The real party in interest is Digimarc Corporation, by an assignment from the inventors recorded at Reel 011371, Frames 0962-0963, on December 7, 2000.

II RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-20 are finally rejected and appealed.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

As set forth in claim 1, one aspect of the invention is a method of modifying a media signal so that the media signal can be authenticated by detecting an alteration to the media signal. See, for example, page 2, lines 8-17, Fig. 1 and accompanying text at page 3, line 16 to page 4 line 18. The method transforms at least a portion of the media signal into a set of frequency coefficients in a frequency domain (e.g., see page 3, lines 16-28), and adjusts a relationship between selected frequency coefficients to a reference value such that the alteration to the media signal to be detected alters the relationship (e.g., see page 4, lines 1-18).

Claim 2 recites that the media signal is an image signal (e.g., see page 3, line 25).

Claim 3 recites that the alteration to be detected is scanning, printing or photocopying the image signal (e.g., page 5, lines 9-20). For example, frequency domain coefficients and the relationship among them are selected so as to be impacted by printing, scanning or photocopying, and therefore, these particular alterations are detectable by evaluating the relationship of these coefficients in an image suspected of being printed, scanned or photocopied.

Claim 4 recites that the relationship comprises a ratio between a selected coefficient and one or more neighboring coefficients, and claim 5 recites that the relationship comprises a ratio between the magnitude of a selected coefficient and an average of neighboring coefficients. See, for example, page 4, lines 1-13.

Claim 6 recites embedding a calibration signal into the media signal to enable a detector to compensate for changes in scale or translation of the media signal after being adjusted according to the relationship. See, for example, page 4, line 19 to page 6, line 15.

In claim 7, the method of claim 1 is implemented in software stored on a computer readable medium. Claim 8 recites a detector for authenticating a media signal that has been processed according to this method.

Claim 9 includes means for computing the relationship in a potentially corrupted version of the media signal and comparing the relationship with a threshold to detect alteration of the potentially corrupted media signal. See, for example, Fig. 2 and accompanying text at page 6, line 16 to page 7, line 5.

Claim 10 recites a method of authenticating a media signal. This method evaluates signal peaks at selected frequency coefficients of the media signal. The media signal has been previously modified to include peaks at the selected frequencies. The method determines based on degradation of the signal peaks whether the media signal has been altered. See, for example, page 2, lines 18-25, page 5, line 9 to page 6, line 15, Fig. 2 and accompanying text at page 6, line 16 to page 7, line 5, and page 8, line 15 to page 10, line 20.

Claim 11 recites using one or more of the peaks to re-orient the media signal (e.g., see page 4, line 19 to page 6, line 10, page 7, lines 6-18, and page 9, lines 1-11).

Claim 12 recites correlating the media signal with a calibration signal having an arrangement of peaks at selected frequency coefficients to determine translation and scale of the media signal (e.g., see page 4, line 19 to page 6, line 10, page 7, lines 6-18, and page 9, lines 1-11). Claim 13 recites correlating the media signal with the calibration signal to determine rotation of the media signal (e.g., page 9, lines 1-11, and page 7, lines 6-18).

Claims 14, 15 and 16 specify different types of media signals (e.g., page 7, lines 19-25, page 8, lines 9-13.

Claim 17 recites a computer readable medium having software for performing a method of authenticating a media signal. This method evaluates signal peaks at selected frequency coefficients of the media signal. The media signal has been previously modified to include peaks at the selected frequencies; and the method determines based on degradation of the signal peaks whether the media signal has been altered. See, for example, page 2, lines 18-25, page 5, line 9 to page 6, line 15, Fig. 2 and accompanying text at page 6, line 16 to page 7, line 5, and page 8, line 15 to page 10, line 20.

Claim 18 recites a watermark decoder comprising a detector for correlating a calibration signal with a media signal suspected of carrying a watermark to determine orientation parameters describing orientation of the media signal at embedding of the watermark, where the calibration signal includes a set of peaks at selected frequency coefficients (e.g., see page 4, line 19 to page 6, line 10, and page 7, lines 6-18, page 8, line 15 to page 10/line 20); and an analyzer operable to orient the media signal using the orientation parameters and to evaluate whether the media signal has been altered after the embedding by examining signal peaks at selected frequency coefficients in the media signal (e.g., page 7, lines 6-18, Fig. 2, and accompanying text at page 6, line 16 to page 7, line 5, and page 8, line 15 to page 10, line 20).

Claim 19 recites that the detector and analyzer of claim 18 use at least some of the same frequency coefficients for determining orientation and evaluating whether the media signal has been altered (e.g., page 5, line 9 to page 6, line 5 and page 9, lines 1-11).

Claim 20 recites that the analyzer of claim 18 is used to detect reproduction of a printed image by examining degradation of the media signal at selected frequency coefficients (e.g., page 9, line 20 to page 10, line 1).

VI. GROUNDS OF REJECTION

- Claims 1-2, 4 and 7-8 are rejected under 35 U.S.C. 102(a) as being anticipated by Katzenbeisser et al. ("Katzenbeisser")
- Claims 10, 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,757,407 to Bruckstein et al. ("Bruckstein")

- Claims 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,859,920 by Daly et al. ("Daly")
- Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 6,625,295 by Wolfgang et al. ("Wolfgang")
- Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 6,535,251 by Ribas-Corbera ("Ribas-Corbera")
- Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 5,832,119 to Rhoads ("Rhoads")
- Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 6,563,935 to Echizen et al. ("Echizen")
- Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Rhoads
- Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Echizen
- Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Echizen and further in view of Rhoads
- Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Katzenbeisser

VIII. ARGUMENT

Claims 1-2, 4 and 7-8 are not anticipated by Katzenbeisser

Claims 1-2, 4 and 7

Regarding claim 1, Katzenbeisser does not teach "adjusting a relationship" such that the alteration to the media signal to be detected alters the relationship as claimed. Katzenbeisser is silent as to adjusting a relationship "to a reference value such that the alteration to the media signal to be detected alters the relationship" as claimed in combination with the rest of the claim, including the preamble, which establishes meaning of "the alteration" and its use for authentication.

The Examiner argues that the preamble should be given no patentable weight. However, the phrase, "**the alteration** to the media signal to be detected [emphasis added]," in the body of claim 1 refers to and is given meaning by language in the preamble, which states: "modifying the media signal so that the media signal can be authenticated by detecting **an alteration** to the media signal [emphasis added]." The preamble specifies that "the alteration" in the body of the claim refers to a specific use of the alteration for authentication; namely authenticating the media signal by detecting the alteration to the media signal. Claim 1 makes an express connection between the alteration and detection of the alteration for authentication, and this aspect of claim 1 cannot be ignored when determining whether Katzenbeisser teaches all of the elements of claim 1.

Claims 2, 4 and 7 are patentable for the same reasons as claim 1.

Claim 8

Claim 8 further recites a detector for authenticating a media signal that has been processed according to a particular method. Katzenbeisser does not teach a detector for authenticating a media signal that has been processed according to this method.

Claims 10, 14 and 17 are not anticipated by Bruckstein

Claims 10, 14 and 17

Claims 10, 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,757,407 to Bruckstein et al. ("Bruckstein").

The elements of claim 10 are not inherent in Brucktein. Bruckstein's method does not expressly or inherently evaluate signal peaks as claimed. The Examiner contends that "evaluate" is given a broad interpretation, and, since Bruckstein allegedly evaluates the whole image, it must also evaluate signal peaks in the image. However, claim 10 specifically refers to "evaluating signal peaks at selected frequency coefficients ... where the media signal has been previously modified to include peaks at the selected frequencies". Therefore, in order to anticipate claim 10, Bruckstein must teach evaluating signal peaks at selected frequency coefficients which have been previously modified to include peaks. Bruckstein provides no such teaching.

In the final rejection, the Examiner addresses this point by noting that Bruckstein teaches embedding a watermark by modifying magnitude of image data by multiplying with a watermark mask, which allegedly introduces signal peaks. However, Bruckstein's teachings do not support the Examiner's position. Bruckstein's method makes slight, random modifications to contiguous values in the Fourier domain in a manner that does not introduce peaks. Therefore, Bruckstein's watermark recovery method does not evaluate signal peaks at selected frequencies that have been previously modified to include peaks.

A closer reading of Bruckstein confirms this point. At col. 4, line 59, Bruckstein describes his method as introducing slight modifications in a transform image representation, such as the Fourier domain. Bruckstein never suggests that these "slight modifications" correspond to peaks at selected frequencies. Studying Bruckstein further, one sees that the parameter ϵ, which is the parameter that specifies the amount of the modification, requires "small ϵ's". See col. 5, line 63. In addition, the watermark mask corresponds to 8 by 15 contiguous regions in polar coordinate space of the magnitude of a 512 by 512 Fourier transform. 120 pseudo random bits are represented as slight variations within each of these contiguous regions. This arrangement of slight pseudo random variations to the contiguous elements of the frequency domain region indicate that Bruckstein is not intending to embed a watermark by including peaks at selected frequencies within these regions. See, for example, discussion at col. 11, line 61 to col. 12, line 32. Looking at the pictures of watermark mask in Figs. 9(g) through (i), one can see that the mask does not introduce peaks into the contiguous regions.

Moreover, Bruckstein does not teach "determining based on degradation of the signal peaks whether the media signal has been altered." In response, the Examiner further refers to col. 3, lines 66-67 and col. 4, lines 13-14, where Bruckstein refers to an attribute of his watermarking method in which attempts to remove tags or tamper with them have noticeable ill-effects on the image. The fact that malicious attempts to remove Bruckstein's watermark cause noticeable ill-effects on the image does not lead to the conclusion that Bruckstein teaches determining based on degradation of the signal peaks whether the media signal has been altered. All this implies is that it is difficult for an attacker to remove the watermarks without destroying the perceptual quality of the image. Again, claim 10 specifically recites evaluating particular

signal peaks at "selected frequency coefficients...where the media signal "has been previously modified to include peaks at the selected frequencies" and "determining based on degradation" of these particular peaks "whether the media signal has been altered." The mere possibility that tampering with an image embedded using Bruckstein's technique might impact peaks inherent in the image provides no teaching to specifically use peaks that have been explicitly included in the media signal as claimed

Claims 14 and 17 are patentable over Bruckstein for the same reasons as claim 10.

Claims 18-20 are not anticipated by Daly

Claim 18

Claims 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,859,920 by Daly et al. ("Daly")

In contrast to the contention in the Action, Daly does not teach a calibration signal including a set of peaks at selected frequency coefficients. The Examiner has made a number of general citations, none of which show this particular type of calibration signal as claimed. Moreover, Daly does not correlate a calibration signal including a set of peaks at selected frequency coefficients with the media signal as claimed.

Further, as noted in the Action, Daly does not explicitly teach "evaluating whether the media signal has been altered..." as claimed. The Office's argument that this element is inherent in Daly's teachings is flawed. The cited passage at col. 9, lines 40-50 refers to Daly's approach of finding an array of pixels where performance of the decoder will be optimized. This process has nothing to do with "evaluating whether the media signal has been altered" as claimed.

In response, the Examiner argues: "The devices can be used for many different purposes and purpose does not define the device. As a result the limitations towards a specific use in claims 18-20 have been disregarded." The Examiner's approach of disregarding elements of the claim has no foundation in law. To maintain the rejection, the Office must establish how each of the claim elements is taught in Daly, yet it has not done so.

Claim 19

Applicant's respectfully disagree with the Office's position that elements of claim 19 are inherent in Daly. Daly does not teach using at least some of the same frequency coefficients for

determining orientation and evaluating whether the media signal has been altered. The Office has not identified which aspects of Daly correspond to the claimed detector and analyzer. The Office contends, in reference to Daly, that "the analyzer uses at least some of the same frequency coefficients that were selected for it by the detector." However, the Office does not describe which portions of Daly's system correspond to these claim elements. Thus, there is no foundation for asserting that Daly's system inherently has the elements of claim 19.

Claim 20

The Office contends that Daly teaches the elements of claim 20 at col. 5, lines 8-24, yet this passage does not teach: "the analyzer is used to detect reproduction of a printed image by examining degradation of the media signal at selected frequency coefficients" as claimed. Daly does not teach this aspect of claim 20 in combination with the other claim elements.

Claim 3 is patentable over the combination of Katzenbeisser and Wolfgang

Claim 3

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 6,625,295 by Wolfgang et al. ("Wolfgang").

Wolfgang's mere reference to scanning information with a scanner provides no teaching that Wolfgang's method or Katzenbeisser's method can be used to detect alteration, namely, image alteration due to scanning, printing or photocopying as claimed. Therefore, the combination of these references does not render claim 3 obvious.

The Examiner refers to passages in Wolfgang that suggest that Wolfgang's technique should survive conversion between physical media such as through printing and optical scanning. Just because Wolfgang's watermark might survive such conversion does not mean that Wolfgang provides any teaching regarding use of the watermark to, in particular, detect scanning, printing or photocopying the image signal as claimed. The passage cited in col. 1, lines 25-33 refers to a need for tools for identification of copies of the protected work that may have been forged, filtered or otherwise modified. However, Wolfgang does not teach the elements of claim 1 missing from Katzenbeisser. Wolfgang's expression of need for tools does not teach these

elements, alone or when viewed in the context of the rest of Wolfgang's and Katzenbeisser's teachings.

Claim 5 is patentable over the combination of Katzenbeisser and Ribas-Corbera

Claim 5

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 6,535,251 by Ribas-Corbera ("Ribas-Corbera").

Ribas-Corbera relates to video compression and provides no teaching regarding modifying a media signal so that it can be authenticated as claimed. The combined teachings of these references fail to teach all of the elements of claim 5, and there is no motivation to combine video compression teachings used to improve video quality in Ribas-Corbera with the teachings in Katzenbeisser. These techniques designed to improve video quality are not used for any type of authentication, and there is no reason to combine them with Katzenbeisser to make elements of the invention as claimed.

The Examiner notes that Ribas-Corbera's method is designed to increase fidelity of a signal, which could minimize the risk of errors when checking the alteration of the signal.

Whether this is true or not, the key point is that the Examiner must show that Ribas-Corbera teaches the elements missing from Katzenbeisser and that there is appropriate motivation to combine these references. While Ribas-Corbera appears to use some type of average in the cited passage of col. 6, it is not used to adjust a relationship between selected frequency coefficients to a reference value, and the parameters involved in Ribas-Corbera's "average value sum" equation do not include a magnitude of a selected coefficient and one or more neighboring coefficients. Neither Ribas-Corbera nor Katzenbeisser teach: "the relationship comprises a ratio between the magnitude of a selected coefficient and an average of neighboring coefficients."

Even assuming that Ribas-Corbera does teach the elements of claim 5 missing from Katzenbeisser, the use of Ribas-Corbera's method for computing a quantization level is not combinable with Katzenbeisser's method. The Examiner suggests that this method minimizes the risk of errors when checking alteration. However, Ribas-Corbera's quantization is a form of lossy compression that is more likely to interfere with Katzenbeisser's method. In fact,

Katzenbeissser notes that such lossy form of compression tends to damage the embedded information. Thus, if anything, Katzenbeisser teaches that quantization of coefficients is harmful, not useful. Therefore, one of skill in the art would not seek to combine these teachings, but rather, would do just the opposite.

Claim 6 is patentable over the combination of Katzenbeisser and Rhoads

Claim 6

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 5,832,119 to Rhoads ("Rhoads").

As noted for claim 1, Katzenbeisser does not teach all of the elements of claim 1. Rhoads does not provide the elements of claim 1 missing from Katzenbeisser. Therefore, the combined teachings of Katzenbeisser and Rhoads do not provide all of the elements of claim 6. Therefore, the combination does not render claim 6 obvious.

Claim 9 is patentable over the combination of Katzenbeisser and Echizen

Claim 9

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katzenbeisser in view of U.S. Patent No. 6,563,935 to Echizen et al. ("Echizen").

The combined teachings of Katzenbeisser and Echizen do not provide all of the elements of claim 9. Therefore, the combination does not render claim 9 obvious. Neither Katzenbeisser nor Echizen teach, "comparing the relationship with a threshold to detect alteration of the potentially corrupted media signal" as claimed. Echizen provides no suggestion that his method of comparing differences in brightness values with threshold values can be used to detect alteration as claimed. Moreover, Echizen fails to suggest that this technique could apply to frequency coefficients.

In response, the Examiner says that Echizen has been "cited as an example of the well known practice of detecting alteration of the potentially corrupted media signal...wherein the potentially corrupted media signal is compared with a threshold." But as noted before, the cited passage in Echizen is not teaching a method of detecting alteration as claimed. Therefore,

Echizen does not provide a basis for the Examiner's statement that the claimed manner of detecting alteration is well known.

Claim 11 is patentable over the combination of Bruckstein and Rhoads

Claim 11

Bruckstein and Rhoads, even when combined, do not teach all of the elements of claim 10. For example, the combined teachings do not disclose or teach "determining based on degradation of the signal peaks whether the media signal has been altered". Therefore, the combined teachings do not render claim 10 or 11 (which is based on 10) obvious.

Claim 12 is patentable over the combination of Bruckstein and Echizen

Claim 12

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Echizen.

Bruckstein and Echizen, even when combined, do not teach all of the elements of claim 10. For example, the combined teachings do not disclose or teach "determining based on degradation of the signal peaks whether the media signal has been altered". Therefore, the combined teachings do not render claim 10 or 12 (which is based on 10) obvious.

Claim 13 is patentable over the combination of Bruckstein, Echizen and Rhoads

Claim 13

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Echizen and further in view of Rhoads.

Bruckstein, Echizen and Rhoads, even when combined, do not teach all of the elements of claim 10. For example, the combined teachings do not disclose or teach "determining based on degradation of the signal peaks whether the media signal has been altered". Therefore, the combined teachings do not render claim 10 or 13 (which is based on 10) obvious.

Claims 15-16 are patentable over the combination of Bruckstein and Katzenbeisser

Claims 15-16

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckstein in view of Katzenbeisser.

Bruckstein and Katzenbeisser, even when combined, do not teach all of the elements of claim 10. For example, the combined teachings do not disclose or teach "determining based on degradation of the signal peaks whether the media signal has been altered". Therefore, the combined teachings do not render claim 10 or 15-16 (which are based on 10) obvious.

IX. CONCLUSION

For the foregoing reasons, the final rejection of the claims should be reversed.

Respectfully submitted,

Date: November 21, 2005

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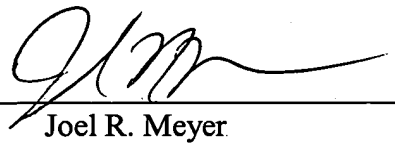
By 
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CLAIMS APPENDIX

Claims involved in the appeal

1. A method of modifying a media signal so that the media signal can be authenticated by detecting an alteration to the media signal, the method comprising:

transforming at least a portion of the media signal into a set of frequency coefficients in a frequency domain;

adjusting a relationship between selected frequency coefficients to a reference value such that the alteration to the media signal to be detected alters the relationship.

2. The method of claim 1 wherein the media signal is an image signal.

3. The method of claim 2 wherein the alteration to be detected is scanning, printing or photocopying the image signal.

4. The method of claim 1 wherein the relationship comprises a ratio between a selected coefficient and one or more neighboring coefficients.

5. The method of claim 4 wherein the relationship comprises a ratio between the magnitude of a selected coefficient and an average of neighboring coefficients.

6. The method of claim 1 including:

embedding a calibration signal into the media signal to enable a detector to compensate for changes in scale or translation of the media signal after being adjusted according to the relationship.

7. A computer readable medium on which is stored software for performing a method of modifying a media signal so that the media signal can be authenticated by detecting an alteration to the media signal, the method, comprising:

transforming at least a portion of the media signal into a set of frequency coefficients in a frequency domain;

adjusting a relationship between selected frequency coefficients to a reference value such that the alteration to the media signal to be detected alters the relationship.

8. A detector for authenticating a media signal that has been processed according to a method of modifying the media signal so that the media signal can be authenticated by detecting an alteration to the media signal, the method comprising:

transforming at least a portion of the media signal into a set of frequency coefficients in a frequency domain;

adjusting a relationship between selected frequency coefficients to a reference value such that the alteration to the media signal to be detected alters the relationship.

9. The detector of claim 8 including means for computing the relationship in a potentially corrupted version of the media signal and comparing the relationship with a threshold to detect alteration of the potentially corrupted media signal.

10. A method of authenticating a media signal comprising:

evaluating signal peaks at selected frequency coefficients of the media signal, where the media signal has been previously modified to include peaks at the selected frequencies; and

determining based on degradation of the signal peaks whether the media signal has been altered.

11. The method of claim 10 including using one or more of the peaks to re-orient the media signal.

12. The method of claim 10 including:

correlating the media signal with a calibration signal having an arrangement of peaks at selected frequency coefficients to determine translation and scale of the media signal.

13. The method of claim 12 including:

correlating the media signal with the calibration signal to determine rotation of the media signal.

14. The method of claim 10 wherein the media signal is an image.

15. The method of claim 10 wherein the media signal is an audio signal.

16. The method of claim 10 wherein the media signal is a video signal.

17. A computer readable medium having software for performing a method of authenticating a media signal comprising:

evaluating signal peaks at selected frequency coefficients of the media signal, where the media signal has been previously modified to include peaks at the selected frequencies; and

determining based on degradation of the signal peaks whether the media signal has been altered.

18. A watermark decoder comprising:

a detector for correlating a calibration signal with a media signal suspected of carrying a watermark to determine orientation parameters describing orientation of the media signal at embedding of the watermark, where the calibration signal includes a set of peaks at selected frequency coefficients; and

an analyzer operable to orient the media signal using the orientation parameters and to evaluate whether the media signal has been altered after the embedding by examining signal peaks at selected frequency coefficients in the media signal.

19. The decoder of claim 18 wherein the detector and analyzer use at least some of the same frequency coefficients for determining orientation and evaluating whether the media signal has been altered.

20. The decoder of claim 18 wherein the analyzer is used to detect reproduction of a printed image by examining degradation of the media signal at selected frequency coefficients.

EVIDENCE AND RELATED PROCEEDINGS APPENDIX

There are no appendices for evidence or related proceedings under 37 C.F.R. Section 41.37(c)(ix)-(x).